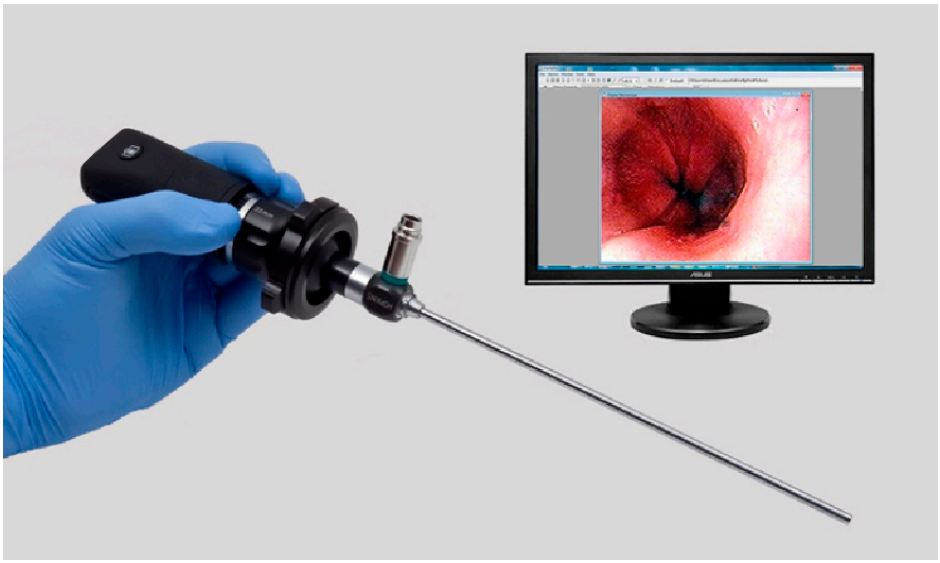
Firefly®

VETERINARY

WIRELESS ENDO-CAMERA

DE1250 User Manual



THANKS FOR SELECTING A WIRELESS FIREFLY ENDO-CAMERA.

To take full advantage of this product's advanced capabilities, and to properly and safely use this product, please read the manual carefully.

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Caution: Changes or modifications not expressly approved by Firefly Global will void the purchaser's authority to operate the equipment and its warranty.

THIS PRODUCT IS NOT APPROVED FOR HUMAN MEDICAL USE

CE RoHS 2002/95/EC FC Tested To Comply With FCC Standards For Home or Office Use

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INTRODUCTION

The Wireless Firefly endoscope camera consists of a digital endoscope camera, software application and a USB cable. Only a computer equipped with a free USB port is needed to use the system.

The Wireless Firefly endoscope camera is designed for effective operation under a variety of conditions and typical video parameters are set at the factory. The software allows users to adjust most parameters including Saturation, Hue, Brightness, Contrast and Sharpness for desired applications.

System Requirements
The Wireless Firefly endoscope camera System requires a user PC system running Windows XP Service Pack 2 or later operating system, a viewing screen, and a PC with an available USB 1.1 or 2.0 port.

Intended use

The Wireless Firefly endoscope camera is intended to aid in veterinary endoscopy applications.

User Profile

The Wireless Firefly endoscope camera intended for applications such as:

- Veterinary
- Medical Schools
- Industrial Borescopes
- *NOT APPROVED FOR HUMAN MEDICAL USE*

Warranty Registration

Register your Firefly device at http://www.fireflyglobal.com/warranty-registration/ within two weeks of your purchase and maintain your original receipt.

WARNINGS & CAUTIONS

Please familiarize all operating personnel with the general safety information in this summary. Specific warnings and cautions are also found throughout this manual.

Warning

A warning statement in this manual identifies a condition or practice which if not corrected or discontinued immediately, could lead to injury, illness, or death.

- Do not use in the presence of flammable anesthetics.
- This product has no user serviceable/replaceable parts. Please refer all service to authorized service personnel.
- This instrument is not intended to be used in the eye.
- This product generates and records reference images from inputs obtained from the software application FireflyPro. These reference images are not intended for medical or other diagnostic purposes.

Caution

A caution statement in this manual identifies condition or practice, which if not corrected or discontinued immediately, could lead to equipment failure, equipment damage, or data loss.

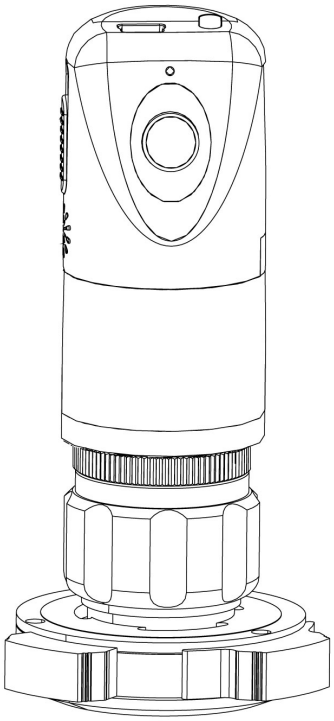
- In order to obtain optimum performance and ensure patient safety, thoroughly read this manual.
- Do not use the Firefly endoscope camera if you notice any signs of damage to the components of the system. Contact customer service for immediate assistance.
- Do not attempt to disinfect the Firefly endoscope camera using glutaraldehyde products, ethylene oxide gas, steam or any other liquid or gas disinfectant.
- The signal output (USB Port) connector is intended for connection of only devices complying with IEC 60601-1, or other IEC standards (for example, IEC 60950), as appropriate to the device. Connecting additional devices to the Firefly endoscope camera is not allowed. You are responsible for verifying that the system complies with the requirements of the system standard IEC 60601-1-1.

- This product complies with current required standards for electromagnetic interference and should not present problems to other equipment or be affected by other devices. As a precaution, avoid using this device in close proximity to other equipment.

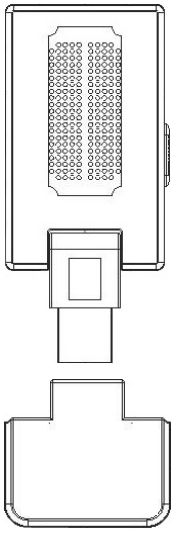
- Do not apply alcohol, chemicals, or water to the lens. Any liquids entering the optical assembly will damage internal components.

CHECK LIST

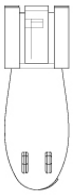
Before starting, check that all the following items have been included with your product. If anything is missing, contact your dealer.



Endoscope Camera x 1pc



Receiver x 1 pc



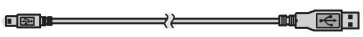
Clip (attached to scope) x 1 pc

Software Application CD

100-240V AC to 5V USB DC

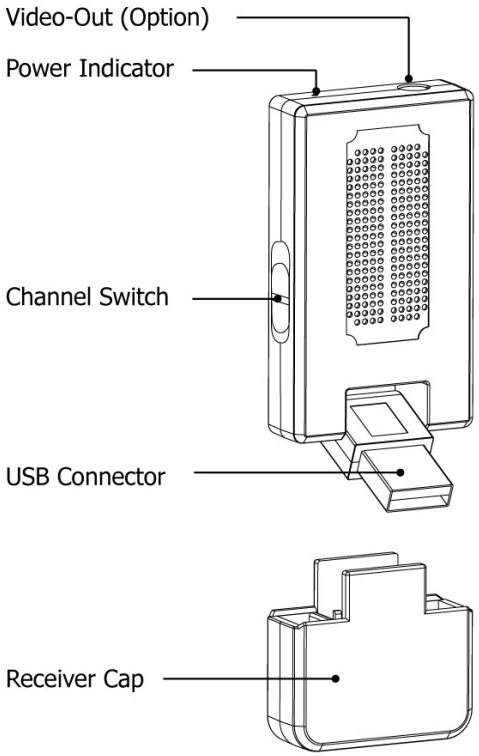
Notice: Actual Shape may vary.

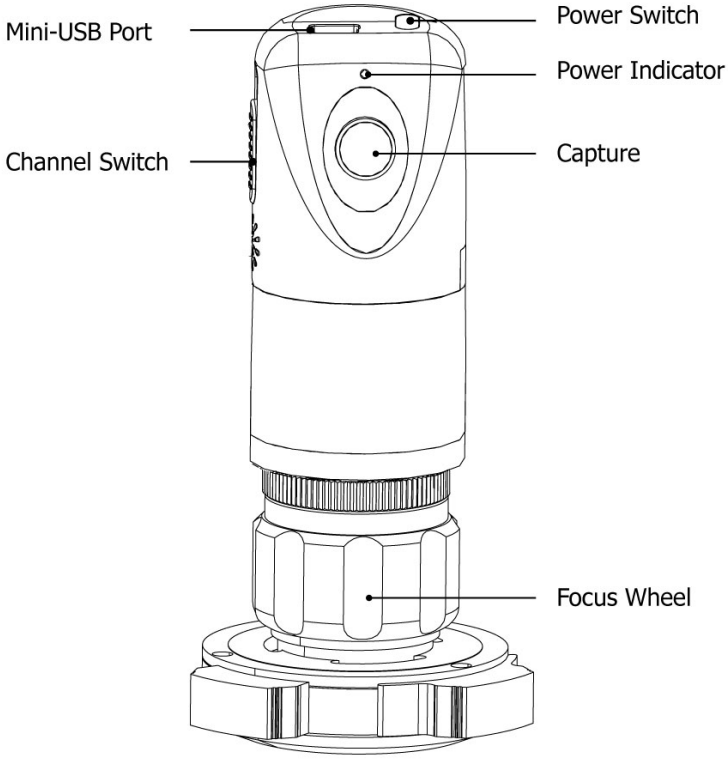
Power Adapter x 1pc



USB charger cable x 1 pc

NOMENCLATURE





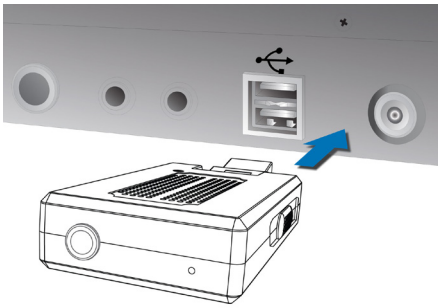
OPERATION

SETTING UP THE SOFTWARE APPLICATION:

Prior to using the Firefly Endoscope Camera for the first time, install the FireflyPro software application following the instructions provided with the installation CD.

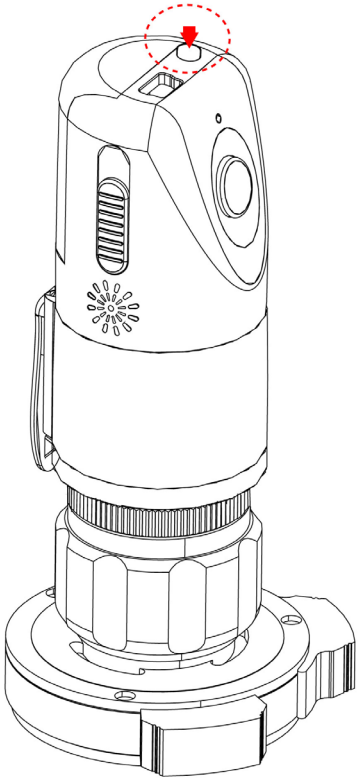
Connect to PC:

Connect the compact receiver to the PC's USB port



Power the Device On:

Push the 'Power Button' at the rear of the Endoscope to activate the device. An indicator light will turn on to confirm the power status.



Charging Battery:

■ Duration:
The Wireless Firefly Endoscope Camera has a built-in high efficiency lithium battery that enables more than 3.5 hours continuous operation.

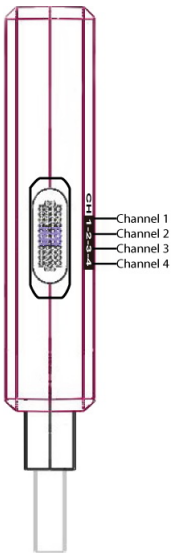
■ Charging the Battery:
Through the mini-USB port at the rear of the Endoscope Camera, the embedded battery can be charged with the provided USB DC cable. The cable must be connected to the USB port of a PC or to the "USB Power Adapter", which can charge directly from a wall outlet.

■ Overload Protection:
The overload protection circuit will prevent overcharging when the battery is full and the "Indicator" will turn green.

■ Power Indication:
The power indicator light is normally red during operation, but it will turn blue when the remaining battery life is less than 30 minutes.

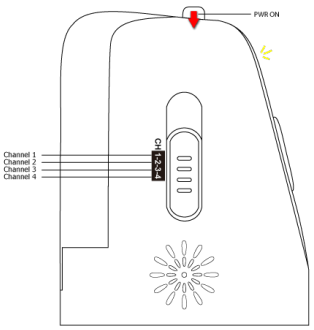
The lithium battery is a delicate and consumable item. It is expected to last through years of use and is guaranteed for twelve months from its purchase against defects. If there is any battery related issue, please contact customer service immediately. Battery replacement by unauthorized personnel or replacement with unauthorized batteries may damage the system and voids the overall warranty.

Channel Mapping:



On the rear right side of the Endoscope Camera, there is a switch allowing users to set the wireless channel. Both the receiver and Endoscope Camera must be set to the same channel for proper operation:

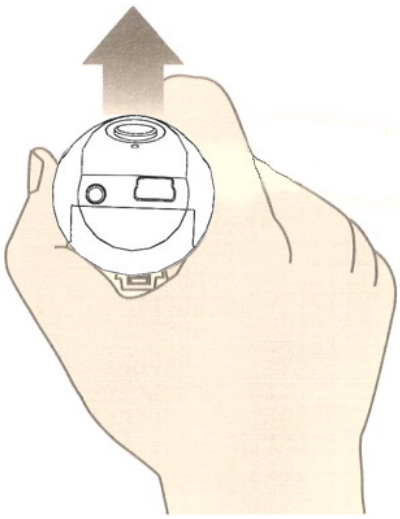
◆ CH 1: Channel 1
◆ CH 2: Channel 2
◆ CH 3: Channel 3
◆ CH 4: Channel 4



Using the Firefly Endoscope Camera System:

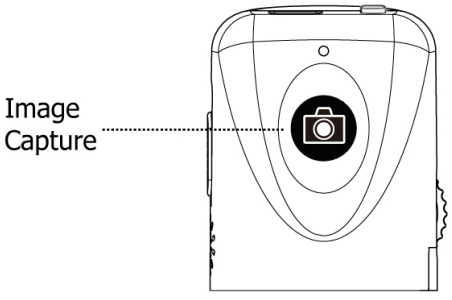
Recommended holding position:

It is suggested to hold the Endoscope Camera, transparent cover forward, with the thumb held on the equipment. This holding position offers relative stability and allows lens control. The index finger is still free to rotate and adjust the focus wheel (as shown).



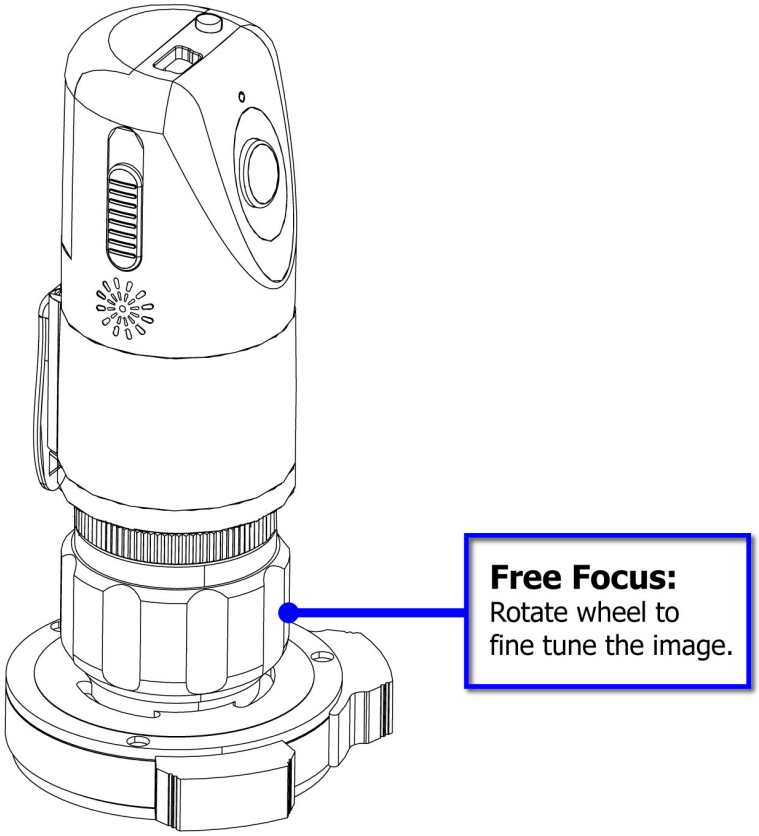
Using the image capture control:

Press and release the Capture button to capture image frames. The system will generate a shutter sound from the PC speaker as confirmation.



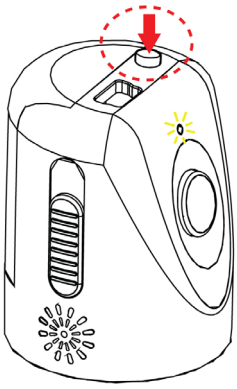
Using Focus:

Based on the relative distance of the observed object, the focus wheel can be turned for a clear image. When a higher magnification is required, the focus wheel can be turned to the left (see below). If a larger field of view is required, the Endoscope Camera can be moved farther away and the wheel turned to the right.



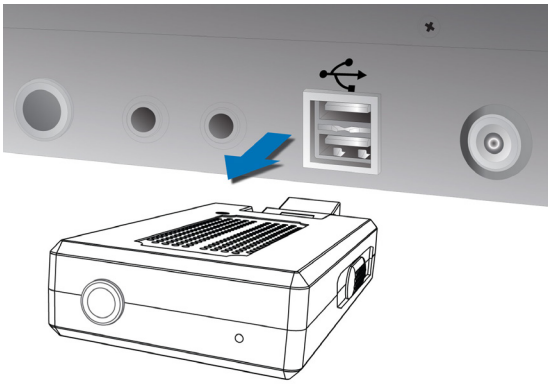
Standby and Remove device:

To temporarily turn off or remove the device, push and release the power button to the "OFF" position. The device must also be turned off through the Windows operating system:



- On your Microsoft Windows Desktop, click My Computer in the left pane. Double-click the USB Video Device ("Wireless Digital Microscope" in Windows Vista and Windows 7).

After turning off the device through Windows above, the compact receiver can be unplugged from the PC's USB port. Using this sequence will avoid transient voltages from potentially causing hardware damage.



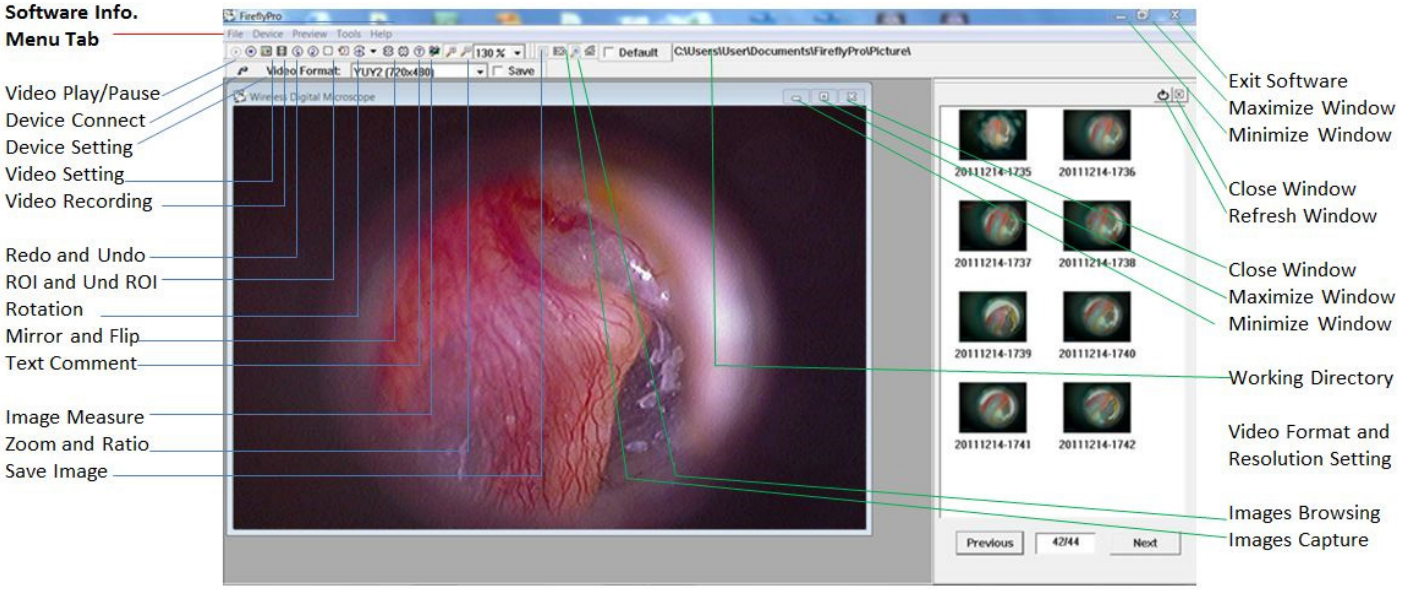
Launch the Software Application:

Double-click the FireflyPro.exe icon on your computer desktop:

Viewing the Images:

FireflyPro software controls your Firefly Endoscope Camera. The Endoscope Camera communicates with the PC through the USB compact receiver. The user can configure the video properties, review live images, capture images, record video clips and perform a variety of powerful measurement and documentation functions.

The main features of FireflyPro are shown below:



Tool bars

The Tools bars enable quick access to the functions of FireflyPro software. The tool bars can be grouped into Control, Images and Device tool bar sets.

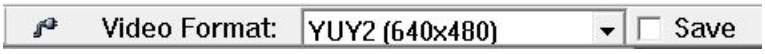
Control Tool bar:

Icon	Icon Name	Function Description
	Play	Start the video stream preview
	Pause	Freeze live video image frame
	Video Setting	Configure video properities
	Video Recording	Video recording and settings (frame, period, quality, codec etc...)
	Undo	Undo the previous Rotation, Text Comment and Zoom
	Redo	Redo the previous Rotation, Text Comment and Zoom
	ROI	Select region of interest (ROI) on live video stream
	Undo ROI	Revoke ROI selection
	Rotation	Rotate live video 0°, 90°, 180°, 270°
	Mirror	Mirror live video horizontally
	Flip	Flip live video vertically
	Text Comment	Add text layer on image
	Image Measure	Launch image measurement application
	Zoom +	Zoom-in live video up to 300%
	Zoom -	Zoom-out live video down to 10%
100 %	Zoom Ratio	Set Zoom ratio from 10-300

Image tool bar:

Icon	Icon Name	Function Description
	Save Image	Store frozen image
	Image Capture	Capture and store instant image from live video
	Image Browsing	Browse images in working directory
	Working Directory	Pop-up to select working directory path
C:\Documents and Settings\My Documents\Firefly\Picture		Working directory path

Device Tool bar:



Icon	Icon Name	Function Description
	Device Connect	Refresh image device connection
YUY2 (640x480)		Select a video format (default 640x480 YUY2)

MAINTENANCE AND SERVICE

Cleaning recommendation

CAUTION Do not apply alcohol, chemicals, or water to the lens. Any liquids entering the optical assembly will damage internal components.

Use a dry cloth to clean the Digital Firefly endoscope camera on a weekly basis.

Recycling the system components

Within the EU

Do not dispose of this product as unsorted municipal refuse. Submit for separate collection as specified by Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste Electronic and Electrical Equipment (WEEE).

If this product is contaminated, this directive does not apply. For more specific disposal information contact Customer Service.

Outside the EU

When the product and its components reach end of life, recycle the product according to national, state, and local regulations.

Service Policy

All repairs on products under warranty must be performed or approved by Firefly or its authorized resellers. Unauthorized repairs will void the warranty. In addition, whether or not covered under warranty, any product repair shall exclusively be performed by Firefly-certified service personnel.

If the product fails to function properly — or if you need assistance, service, or spare parts — contact your Firefly reseller.

Before contacting your reseller, try to duplicate the problem and check all accessories to ensure that they are not causing the problem. When calling, please be prepared to provide:

- Product name and model number and complete description of the problem.
- Serial number of your product (if applicable).
- Complete name, address and phone number of your facility.
- For out-of-warranty repairs or parts orders, a purchase order or credit card number.
- For parts orders, the required spare or replacement part numbers.

If your product requires warranty, extended warranty, or non-warranty repair service, please contact your Firefly reseller. A customer service representative will assist you in troubleshooting the problem and will make every effort to solve it over the phone, avoiding potential unnecessary returns. In case a return cannot be avoided, the representative will record all necessary information and will provide a Return Authorization number, as well as the appropriate shipping address. The Return Authorization number must be obtained prior to any return.

If you have to return your product for service, follow these recommended packing instructions:

- Disconnect all hoses, cables, sensors, power cords, and ancillary products (as appropriate) before packing, unless you suspect they are associated with the problem.
- Wherever possible use the original shipping carton and packing materials.
- Include a packing list and the Return Authorization number.

It is recommended that all returned goods be insured. Claims for loss or damage to the product are the responsibility of the sender.

SPECIFICATIONS

Item	Specification
Weight	Approximately 150 g (0.33 lb)
Dimensions (approximate)	Length: 12.0 cm (4.7inches) Height: 5.7 cm (2.2 inches) Width: 5.7 cm (2.2 inches)
Power	USB 5 VDC, 150mA
Protection against ingress of water	IPXØ
Operating conditions Temperature Relative humidity Altitude	 +10°C to +40° C (+50°F to +104°F) 30% to 75% noncondensing 700 to 1060 hPa
Shipping and storage conditions Temperature Relative humidity	 -20°C to +49°C (-4°F to +120°F) 95% noncondensing max.
Wireless power Sensitivity Noise ratio Antennae resistance Available Channels Coverage	Less than 15mW -87dBm 47dBm 50Ω 4 Over 5 meters (15ft) on open field
Battery (Lithium battery) Capacity Service	More than 3 hours continuous use 850mAh (Lithium battery) Authorized personnel only
Safety Compliance	FCC, CE and RoHS compliant (non-medical)
Patent	Patent Pending

LIMITED WARRANTY

Limited Hardware Warranty (through distributors & resellers)

Firefly Global hardware products come with a 1-year limited hardware warranty. The warranty is extended through Firefly Global authorized representatives and resellers. If you have a warranty claim, please contact the store, distributor, or website through which the product was purchased.

Register your Firefly device at http://www.fireflyglobal.com/warranty-registration/ within two weeks of your purchase and maintain your original receipt.

What is covered by this limited hardware warranty?

This limited hardware warranty covers defects in materials and workmanship in your Firefly Global hardware products.

What is not covered by this limited hardware warranty?

This limited hardware warranty does not cover:

- Software, including the operating system and software added to or bundled with the Firefly Global hardware products
- Problems that result from:
  - External causes such as accident, abuse, misuse, or problems with electrical power
  - Servicing not authorized by Firefly Global
  - Usage that is not in accordance with product instructions
  - Failure to follow the product instructions
  - Problems caused by using accessories, parts, or components not supplied by Firefly Global
- Products with missing or altered serial numbers
- Products for which Firefly Global or its distributors have not received payment
- Normal wear and tear

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION). FIREFLY GLOBAL'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN TIME TO THE TERM OF THE LIMITED WARRANTY PERIOD REFLECTED ON YOUR PACKING SLIP OR

INVOICE. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THIS LIMITATION MAY NOT APPLY TO YOU.

WE DO NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS LIMITED HARDWARE WARRANTY OR FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, OR FOR LOST DATA OR LOST SOFTWARE. OUR LIABILITY WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. THIS IS THE MAXIMUM AMOUNT FOR WHICH WE ARE RESPONSIBLE.

How long does this limited hardware warranty last?

The limited hardware warranty on all Firefly Global products begins on the date of the packing slip, invoice, or receipt. The warranty period is not extended if a warranted product or any parts are repaired or replaced. Firefly Global may change the availability of limited hardware warranties, at its discretion, but any changes will not be retroactive.

What do I do if I need warranty service?

Before the warranty expires, please contact the store, distributor, or website through which the product was purchased.

What will Firefly Global do?

Firefly Global or its authorized representative or reseller will repair any Firefly Global hardware products returned that prove to be defective in materials or workmanship. If Firefly Global or its authorized representatives are not able to repair the product, we will replace it with a comparable product that is new or refurbished.

When you contact our authorized representatives or resellers via phone or email, they will issue a Return Material Authorization Number for you to include with your return. You must return the products in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk if the product is lost or damaged in shipment. The repaired or replacement products will be returned to you. The reseller or authorized representative will pay to ship the repaired or replaced products to you if you use a delivery address in the country where the reseller is located. Otherwise, the product will be shipped to you freight collect.

If it is determined that the problem is not covered under this warranty, you will be notified and informed of service alternatives that are available to you on a fee basis.

How will you fix my product?

We use new and refurbished parts made by various manufacturers in performing warranty repairs and in building replacement parts and systems. Refurbished parts and systems are parts or systems that have been returned to Firefly Global, some of which were never used by a customer. All parts and systems are inspected and tested for quality. Replacement parts and systems are covered for the remaining period of the limited hardware warranty for the product you bought. Firefly Global owns all parts removed from repaired products.

May I transfer the limited hardware warranty?

Limited hardware warranties are not transferable.

TROUBLESHOOTING

Frequently Asked Questions (FAQs):

Q1. What do I do if my Firefly Endoscope Camera and FireflyPro software suddenly stops working?
Answer:

a) Shutdown the Firefly Endoscope Camera and disconnect the USB wireless receiver from the computer.
b) Close the FireflyPro software.
c) Wait for one minute, reconnect the wireless receiver to system and switch the Endoscope Camera on.
d) Double-click the FireflyPro icon on desktop to launch the software application again.

Q2. When using the first version of Vista (not Vista SP1), there is a black visible region that randomly appears, what can I do to fix this?
Answer:
Please update Windows Vista through Microsoft update, or click Toolbar - "Set -" default" – "OK" to refresh the display.

Q3. What do I do when my computer is woken-up from standby or hibernation and FireflyPro software stops working?
Answer:
Please close and try restarting the software application again.

Q4. Why there is no image displayed on FireflyPro image windows?
Answer:

a. Please verify whether the wireless receiver is connected properly
b. Recharge the Endoscope Camera to ensure it has sufficient power

Q5. The Endoscope Camera and wireless receiver are installed, but why can they not be used?
Answer:

a. Make sure the FireflyPro software is installed completely and properly.
b. Make sure the wireless receiver is connected to the PC's USB port.
c. Please unplug the compact receiver and plug into the PC's USB port again.
d. Recharge the Endoscope Camera to ensure it has sufficient power

Q6. How do I uninstall the FireflyPro software?
Answer:
To uninstall, go to Start -> Settings -> Control Panel -> Programs and Features -> Uninstall

Q7. Why does the video stream appear like a mosaic and update slowly (or not smoothly)?
Answer:

a. Too many software programs may be running simultaneously and overloading the CPU, or the physical memory has reached its saturation. Please close unnecessary programs. If video stream doesn't improve, please reboot the system in order to release previously used memory.

b. Check whether the system is infected by a virus.
c. The PC may be too old to properly drive the video stream and does not meet the minimum standards set forth in the instructions. Please use faster system.

Q8. What to do if the FireflyPro software application crashes?
Answer:

If the system crashes, disconnect the USB wireless receiver and switch off the Endoscope Camera. Re-boot the PC and, after system reboot, reconnect the hardware, switch on and restart the FireflyPro application.

Q9. There are some visual artifacts and disturbances on the displayed image
Answer:

Your Endoscope Camera may be experiencing interference from other wireless devices or may have weak signal strength. Please try the following steps:

a. Look for a wireless band with less interference by switching the wireless channel both on the Endoscope Camera and wireless receiver
b. Do not cover the back of the Endoscope Camera with your hand. This is where the antenna is located
c. Move any cordless phones away from the Endoscope Camera as they may cause interference
d. Tilt the wireless receiver up and down for better reception
e. Recharge the Endoscope Camera to strengthen its power output
f. Do not place the wireless receiver under metal desks, inside metal cabinets or near metal furniture

For additional FAQ and support, please go to http://www.fireflyglobal.com/faqs/

Thank you for choosing Firefly.

www.fireflyglobal.com